

What is claimed is:

1. A method for combining usage data from a plurality of network elements to generate usage based and usage sensitive records for network service providers, said method comprising:

collecting usage event data records from said plurality of said network elements;

converting said usage event data records into a normalized format;

aggregating said normalized usage event data records by associating said normalized records for related events with one another to form usage detail records; and

exchanging said usage detail records with downstream elements by converting said usage detail records into an appropriate data output format and distributing said output-formatted data to said downstream elements.

2. The method according to claim 1, wherein said collecting said usage event data records comprises identifying an appropriate collection mechanism for each of said network elements and using said identified appropriate collection mechanism to collect said usage event data records from said each network element.

3. The method according to claim 2, wherein said appropriate collection mechanism is selected from the group consisting of polling and spooling.

4. The method according to claim 1, further comprising validating said usage event data records after they are collected and before they are converted into a normalized format.

5. The method according to claim 1, wherein said normalized format includes a key module and usage data of a known length.

6. The method according to claim 5, wherein a value of said key module is used to associate normalized records from related events with one another.

7. The method according to claim 1, wherein said aggregating of said normalized usage event data records includes augmenting usage data in said normalized usage event data records with external data.

8. The method according to claim 1, wherein said aggregating of said normalized usage event data records includes applying a predefined rating criteria to said usage detail records prior to said exchanging of said usage detail records.

9. The method according to claim 1, wherein said method is computer implemented and said aggregating step employs an in-memory database comprising a hashing table and page files, said normalized usage event data records being located in said page files.

10. The method according to claim 1, wherein said method is computer implemented and said aggregating step is performed by an data processing engine of a core mediation component, said core mediation component also permitting a user to access core administrative functionalities such that said core mediation component may be used with any type of network elements and any type of downstream elements.

11. The method according to claim 10, wherein said core administrative functionalities are selected from the group consisting of alarm generation, user interface, report generation, database control, and task management.

12. The method according to claim 10, wherein said collecting and said converting steps are performed by a front end component configurable to collect said usage event data records from said any type of network elements and convert said usage event data records into said normalized format using appropriate conversion functions.

13. The method according to claim 10, wherein said exchanging of said usage detail records is performed by a back end component configurable to convert said usage detail records into said appropriate data output format and distribute said appropriately output-formatted data to any type of downstream elements as necessary.

14. The method according to claim 13, wherein said exchanging of said usage detail records comprises identifying with each of said downstream elements an output format and a output protocol, and for each said downstream element converting said usage detail records into said identified output format and distributing said output-formatted usage detail records to said each downstream element through said identified output protocol.

15. The method according to claim 1, wherein said exchanging of said usage detail records comprises identifying with each of said downstream elements an output format and a output protocol, and for each said downstream element converting said usage detail records into said identified output format and distributing said output-formatted usage detail records to said each downstream element through said identified output protocol.

16. A multi-tiered architecture for transmitting usage data from a plurality of data generating network elements to a plurality of downstream data processing network elements, said architecture comprising:

- a front-end component, said front end component being adapted to collect usage event data records from said plurality of said network elements and convert said usage event data records into a normalized format;

- a core mediation component, said core mediation component being adapted to aggregate said normalized usage event data records into usage detail records by

associating said normalized records for related events with one another; and

a back-end component, said back end component being adapted to exchange said usage detail records with said downstream elements by converting said usage detail records into an appropriate data output format and distributing said output-formatted data to said downstream elements.

17. The system according to claim 16, wherein said core mediation component comprises multiple server machines running in parallel to allow for efficient processing of multiple data input streams from one or more front end components.

18. The system according to claim 16, wherein more than one of said front end components operate in parallel with a single core mediation component to speed to said collection and converting of said usage event data records.

19. The system according to claim 16, wherein said components exchange information using a normalized file format.

20. The system according to claim 19, wherein said normalized file format includes a key module and usage data of a known length.

21. The method according to claim 20, wherein a value of said key module is used by said core mediation

component to associate normalized records from related events with one another.

22. The system according to claim 16, wherein said front end component collects said usage event data by using a pre-defined appropriate collection mechanism for each of said network elements.

23. The system according to claim 21, wherein a given pre-defined appropriate collection mechanism is selected from the group consisting of polling and spooling.

24. The system according to claim 16, wherein said front end component is further adapted to validate said usage event data records after they are collected and before they are converted into a normalized format.

25. The system according to claim 16, wherein core mediation component is further adapted to augment usage data in said normalized usage event data records with external data.

26. The system according to claim 16, wherein said core mediation component is further adapted to apply a predefined rating criteria to said usage detail records.

27. The system according to claim 16, wherein said core mediation component step employs an in-memory database comprising a hashing table and page files, said normalized usage event data records being located in said page files.

28. The system according to claim 16, wherein said core mediation component permits a user to access core administrative functionalities such that said core mediation component may be used with any type of network elements and any type of downstream elements.

29. The system according to claim 16, wherein said core administrative functionalities are selected from the group consisting of alarm generation, user interface, report generation, database control, and task management.

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